

Amendments to the Sequence Listing:

Please replace the sequence listing with the attached sequence listing.

SEQUENCE LISTING

<110> Consortium fuer elektrochemische Industrie [Consortium for electrochemical industry] GmbH

<120> Cells and method for fermentatively preparing R- α -lipoic acid

<130> Co10314

<140>

<141>

<160> 4

<170> PatentIn Ver. 2.0

<210> 1

<211> 679

<212> DNA

<213> Escherichia coli

<220>

<221> CDS

<222> (16)..(654)

<223> lipB gene

<300>

<301> Reed, Kelynn E.
 Cronan Jr., John E.

<302> Lipoic Acid Metabolism in Escherichia coli: Sequencing and Functional Characterization of the lipA and lipB Genes

<303> J. Bacteriol.

<304> 175

<305> 5

<306> 1325-1336

<307> 1993

<400> 1

cacggagatg cccat atg tat cag gat aaa att ctt gtc cgc cag ctc ggt Met Tyr Gln Asp Lys Ile Leu Val Arg Gln Leu Gly <div style="display: flex; justify-content: space-around; width: 100%;"> 1 5 10 </div>	51
ctt cag cct tac gag cca atc tcc cag gct atg cat gaa ttc acc gat Leu Gln Pro Tyr Glu Pro Ile Ser Gln Ala Met His Glu Phe Thr Asp <div style="display: flex; justify-content: space-around; width: 100%;"> 15 20 25 </div>	99
acc cgc gat gat agt acc ctt gat gaa atc tgg ctg gtc gag cac tat Thr Arg Asp Asp Ser Thr Leu Asp Glu Ile Trp Leu Val Glu His Tyr <div style="display: flex; justify-content: space-around; width: 100%;"> 30 35 40 </div>	147
ccg gta ttc acc caa ggt cag gca gga aaa gcg gag cac att tta atg Pro Val Phe Thr Gln Gly Gln Ala Gly Lys Ala Glu His Ile Leu Met <div style="display: flex; justify-content: space-around; width: 100%;"> 45 50 55 60 </div>	195

ccg ggt gat att ccg gtg atc cag agc gat cgc ggt ggg cag gtg act	243
Pro Gly Asp Ile Pro Val Ile Gln Ser Asp Arg Gly Gly Gln Val Thr	
65 70 75	
tat cac ggg ccg ggg caa cag gtg atg tat gtg ttg ctt aac ctg aaa	291
Tyr His Gly Pro Gly Gln Gln Val Met Tyr Val Leu Leu Asn Leu Lys	
80 85 90	
cgc cgt aaa ctc ggt gtg cgt gaa ctg gtg acc ttg ctt gag caa aca	339
Arg Arg Lys Leu Gly Val Arg Glu Leu Val Thr Leu Leu Glu Gln Thr	
95 100 105	
gtg gtg aat acc ctg gct gaa ctg ggt ata gaa gcg cat cct cgg gct	387
Val Val Asn Thr Leu Ala Glu Leu Gly Ile Glu Ala His Pro Arg Ala	
110 115 120	
gac gcg cca ggt gtc tat gtt ggg gaa aag aaa att tgc tca ctg ggt	435
Asp Ala Pro Gly Val Tyr Val Gly Glu Lys Lys Ile Cys Ser Leu Gly	
125 130 135 140	
tta cgt att cga cgc ggt tgt tca ttc cac ggt ctg gca tta aac gtc	483
Leu Arg Ile Arg Arg Gly Cys Ser Phe His Gly Leu Ala Leu Asn Val	
145 150 155	
aat atg gat ctt tca cca ttt tta cgt att aat cct tgt ggg tat gcc	531
Asn Met Asp Leu Ser Pro Phe Leu Arg Ile Asn Pro Cys Gly Tyr Ala	
160 165 170	
gga atg gaa atg gct aaa ata tca caa tgg aaa ccc gaa gcg acg act	579
Gly Met Glu Met Ala Lys Ile Ser Gln Trp Lys Pro Glu Ala Thr Thr	
175 180 185	
aat aat att gct cca cgt tta ctg gaa aat att tta gcg cta cta aac	627
Asn Asn Ile Ala Pro Arg Leu Leu Glu Asn Ile Leu Ala Leu Leu Asn	
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aat ccg gac ttc gaa tat att acc gct taattccata catcaatggc ccaat	679
Asn Pro Asp Phe Glu Tyr Ile Thr Ala	
205 210	

<210> 2
 <211> 213
 <212> PRT
 <213> Escherichia coli

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 20 25 30
 Ser Thr Leu Asp Glu Ile Trp Leu Val Glu His Tyr Pro Val Phe Thr
 35 40 45

Gln Gly Gln Ala Gly Lys Ala Glu His Ile Leu Met Pro Gly Asp Ile
 50 55 60
 Pro Val Ile Gln Ser Asp Arg Gly Gly Gln Val Thr Tyr His Gly Pro
 65 70 75 80
 Gly Gln Gln Val Met Tyr Val Leu Leu Asn Leu Lys Arg Arg Lys Leu
 85 90 95
 Gly Val Arg Glu Leu Val Thr Leu Leu Glu Gln Thr Val Val Asn Thr
 100 105 110
 Leu Ala Glu Leu Gly Ile Glu Ala His Pro Arg Ala Asp Ala Pro Gly
 115 120 125
 Val Tyr Val Gly Glu Lys Lys Ile Cys Ser Leu Gly Leu Arg Ile Arg
 130 135 140
 Arg Gly Cys Ser Phe His Gly Leu Ala Leu Asn Val Asn Met Asp Leu
 145 150 155 160
 Ser Pro Phe Leu Arg Ile Asn Pro Cys Gly Tyr Ala Gly Met Glu Met
 165 170 175
 Ala Lys Ile Ser Gln Trp Lys Pro Glu Ala Thr Thr Asn Asn Ile Ala
 180 185 190
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<210> 3
 <211> 261
 <212> DNA
 <213> Escherichia coli

 <220>
 <221> CDS
 <222> (1)..(258)
 <223> E2 domain hybrid gene

 <300>
 <301> Miles, John S.
 Guest, John R.
 <302> Subgenes expressing single lipoyl domains of the
 dehydrogenase complex of Escherichia coli
 <303> Biochem. J.
 <304> 245
 <306> 869-874
 <307> 1987

<300>
 <301> Ali, Sohail T.
 Guest, John R.
 <302> Isolation and characterisation of lipoylated and
 unlipoylated domains of the E2p subunit of the pyruvate
 dehydrogenase complex of Echerichia coli
 <303> Biochem. J.
 <304> 271
 <306> 139-145
 <307> 1990

 <400> 3
 atg gct atc gaa atc aaa gta ccg gac atc ggg gct gat gaa gtt gaa 48
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 atc acc gag atc ctg gtc aaa gtg ggc gac aaa gtt gaa gcc gaa cag 96
 Ile Thr Glu Ile Leu Val Lys Val Gly Asp Lys Val Glu Ala Glu Gln
 20 25 30

 tcg ctg atc acc gta gaa ggc gac aaa gct tct atg gaa gtt ccg gcg 144
 Ser Leu Ile Thr Val Glu Gly Asp Lys Ala Ser Met Glu Val Pro Ala
 35 40 45

 ccg ttt gca ggc gtc gtg aag gaa ctg aaa gtc aac gtt ggc gat aaa 192
 Pro Phe Ala Gly Val Val Lys Glu Leu Lys Val Asn Val Gly Asp Lys
 50 55 60

 gtg aaa act ggc tcg ctg att atg atc ttc gaa gtt gaa ggc gca gcg 240
 Val Lys Thr Gly Ser Leu Ile Met Ile Phe Glu Val Glu Gly Ala Ala
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 <211> 86
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 20 25 30

 Ser Leu Ile Thr Val Glu Gly Asp Lys Ala Ser Met Glu Val Pro Ala
 35 40 45

 Pro Phe Ala Gly Val Val Lys Glu Leu Lys Val Asn Val Gly Asp Lys
 50 55 60

Val Lys Thr Gly Ser Leu Ile Met Ile Phe Glu Val Glu Gly Ala Ala
65 70 75 80

Pro Ala Ala Ala Pro Ala
85

<210> 5
<211> 264
<212> DNA
<213> Escherichia coli

<220>
<221> CDS
<222> (1)..(261)
<223> BCCP-DASMEP domain gene

<300>
<301> Reche, Pedro
Perham, Richard N.
<302> Structure and selectivity in post-translational
modification: attaching the biotinyl-lysine and
lipoyl-lysine swinging arms in multifunctional enzymes.
<303> EMBO J.
<304> 18
<305> 10
<306> 2673-2682
<307> 1999

<400> 5
atg gaa gcg cca gca gca gcg gaa atc agt ggt cac atc gta cgt tcc 48
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1 5 10 15
ccg atg gtt ggt act ttc tac cgc acc cca agc ccg gac gca aaa gct 96
Pro Met Val Gly Thr Phe Tyr Arg Thr Pro Ser Pro Asp Ala Lys Ala
20 25 30
ttc atc gaa gtg ggt cag aaa gtc aac gtg ggc gat acc cta tgc atc 144
Phe Ile Glu Val Gly Gln Lys Val Asn Val Gly Asp Thr Leu Cys Ile
35 40 45
gtt gaa gcc gac aaa gca tcg atg gaa atc ccg gcg gac aaa tcc ggt 192
Val Glu Ala Asp Lys Ala Ser Met Glu Ile Pro Ala Asp Lys Ser Gly
50 55 60
acc gtg aaa gca att ctg gtc gaa agt gga caa ccg gta gaa ttt gac 240
Thr Val Lys Ala Ile Leu Val Glu Ser Gly Gln Pro Val Glu Phe Asp
65 70 75 80
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85

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 <211> 87
 <212> PRT
 <213> Escherichia coli

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 Pro Met Val Gly Thr Phe Tyr Arg Thr Pro Ser Pro Asp Ala Lys Ala
 20 25 30
 Phe Ile Glu Val Gly Gln Lys Val Asn Val Gly Asp Thr Leu Cys Ile
 35 40 45
 Val Glu Ala Asp Lys Ala Ser Met Glu Ile Pro Ala Asp Lys Ser Gly
 50 55 60
 Thr Val Lys Ala Ile Leu Val Glu Ser Gly Gln Pro Val Glu Phe Asp
 65 70 75 80
 Glu Pro Leu Val Val Ile Glu
 85